

What is claimed is:

1. ~~A substrate processing apparatus comprising:~~

~~a plurality of stages, on each of which a container for containing substrates therein is to be placed; and~~

~~a first section at which the substrates are taken out from the container and/or are put into the container, wherein a first stage amongst the stages is provided at the first section; and~~

~~a movable table carrying the container between the first stage and one of the stages other than the first stage, while the container being placed thereon.~~

2. The substrate processing apparatus according to claim 1, wherein each of the stages has a cut-away area extending from one end of the stage at least to a portion of the stage on which the container is to be placed, and wherein a portion of the cut-away area corresponding to the portion of the stage on which the container is to be placed has a shape that allows the movable table to move vertically through the portion of the cut-away area.

3. The substrate processing apparatus according to claim 2, further comprising:

a horizontal moving mechanism horizontally moving the movable table between a first position adjacent to the portion of the stage on which the container is to be placed and a second position apart from the stage; and

a lifting mechanism vertically moving the movable table.

4. The substrate processing apparatus according to claim 3, wherein the horizontal moving mechanism has a guide rail that guides the movable table for a horizontal movement thereof,

said apparatus further comprising a turning mechanism turning the guide rail in a horizontal plane between a first position where at least a portion of the guide rail is located below the portion of the stage on which the container is to be placed and a second position where the guide rail is withdrawn from a space below the stage.

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5. The substrate processing apparatus according to claim 4, further comprising a second horizontal moving mechanism capable of moving the movable table together with the horizontal moving mechanism and the lifting mechanism to a position adjacent to each of the stages.

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6. The substrate processing apparatus according to claim 1, further comprising a second section at which the container is received from an external of the apparatus and/or is delivered to the external of the apparatus therefrom, wherein a second stage amongst the stages provided at the second section.

7. The substrate processing apparatus according to claim 1, further comprising:

a moving mechanism moving the movable table; and

a second section at which the container is received from an external of the apparatus and/or is delivered to the external of the apparatus therefrom, wherein a second stage amongst the stages is provided at the second section,

wherein the moving mechanism is disposed on a level lower than that of the first and second stages.

8. The substrate processing apparatus according to claim 1 further comprising:

a second section at which the container is received from an external of the apparatus and/or is delivered to the external of the apparatus therefrom, wherein a second stage amongst the stages is provided at the second section;

a first shutter isolating the second section from an external of the apparatus to inhibit access to the second section from the external of the apparatus; and

a second shutter disposed on a side opposite, with respect to the second section, to a side on which the first shutter is disposed.

9. A substrate processing apparatus according to claim 8, further comprising a controller controlling operations of the first and the

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second shutters so that the second shutter is closed when the first shutter is opened, and the first shutter is closed when the second shutter is opened.

10. The substrate processing apparatus according to claim 2, further comprising a sensing device provided at the movable table and inspecting a condition of the substrates contained in the container.

11. The substrate processing apparatus according to claim 10, wherein the sensing device includes a first sensor unit, wherein the first sensor unit is positioned higher than a mounting surface of the movable table so that the first sensor unit can go to a lower portion of the container through the cut-away area of the stage when the container is placed on the stage and the movable table is positioned lower than a mounting surface of the stage, and wherein the first sensor unit inspects the condition of the substrates contained in the container, when the movable table is horizontally moved below the stage while the container is kept on the stage.

12. The substrate processing apparatus according to claim 11, wherein the sensing device inspects, as the condition of the substrates contained in the container, the number of the substrates contained in the container and whether or not there is any jump slot in the carrier.

13. The substrate processing apparatus according to claim 10, wherein the sensing device includes a second sensor unit, wherein the second sensor unit is positioned higher than a mounting surface of the movable table so that the second sensor unit can be positioned in the vicinity of upper portions of the substrates contained in the container when the container is placed on the stage and the movable table is positioned lower than a mounting surface of the stage, and

wherein the second sensor unit inspects whether or not a

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14. The substrate processing apparatus according to claim 1,  
further comprising:

a third section at which the container is delivered to the external of the apparatus therefrom, wherein a third stage amongst the stages is provided at the third section,

15. The substrate processing apparatus according to claim 1, further comprising a passage means through which the moving table moves and transports the container between the first stage and the another stage.

(a) moving a movable table for transporting a container to a position below a surface of a first stage on which a container is placed thereon;

(c) withdrawing the movable table, on which the container is placed, from a position above the first stage;

and

(e) lowering the movable table through a cut-away area formed in the second stage to a position below a surface of the second stage, thereby placing the container on the second stage.

17. The method according to claim 16, wherein the step (a) includes the steps of:

positioning the movable table at a position outside the first stage and lower than a level on which the surface of the first stage lies;

horizontally moving the movable table to the position below the first stage,

said method further comprising the step of (f) inserting a sensing device, provided at the movable table into the container, thereby inspecting a condition of substrates contained in the container while the movable table is moving horizontally.

18. The method according to claim 17, wherein

in step (f), the sensing device inspects, as the condition of the substrates contained in the container, the number of the substrates contained in the container and whether or not there is any jump slot in the carrier.

19. The method according to claim 19, wherein

in step (f), the sensing device inspects, as the condition of the substrates contained in the container, the number of the substrates contained in the container and whether or not a positioning portion of each substrate is placed in a correct position.

20. A method of handling containers for containing substrates, said method comprising the steps of:

(a) delivering a plurality of containers containing substrates onto a receiving stage;

(b) transferring one of the plurality of containers to an unloading stage;

(c) taking out substrates from the container transferred to the unloading stage; and

(d) repeating the steps (b) and (c).

21. A method of handling containers for containing substrates,

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(a) putting substrates into a container on a loading stage;  
(b) transferring the container containing the substrates to a delivery stage after the completion of the step (a) before putting substrates into another container;

(d) delivering the plurality of containers collected on the delivery stage after the completion of the step (c).

(a) 'delivering a plurality of containers each containing substrates onto a receiving stage;

(c) taking out the substrates from the container transferred to the loading/unloading stage;

(e) transferring the container loaded with the substrates in the step (d) to a delivery stage;

(g) delivering the plurality of containers collected on the delivery stage after the completion of the step (f).

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